

1     WHAT IS CLAIMED IS:

2     1.     A drilling fluid comprising

3                 an oleaginous fluid, wherein the oleaginous fluid is the continuous phase of the  
4                 drilling fluid;

5                 a non-oleaginous fluid, wherein the non-oleaginous fluid is the discontinuous  
6                 phase of the drilling fluid;

7                 a primary emulsifier, wherein the primary emulsifier is in sufficient concentration  
8                 to stabilize the invert emulsion;

9                 a rheology modifier, wherein the rheology modifier is selected from the group  
10                 consisting of a dimer poly-carboxylic C<sub>12</sub> to C<sub>22</sub> fatty acid, trimer poly-carboxylic C<sub>12</sub> to  
11                 C<sub>22</sub> fatty acid, tetramer poly-carboxylic C<sub>12</sub> to C<sub>22</sub> fatty acid, mixtures of these acids, and  
12                 polyamide wherein the polyamide is the condensation reaction product of a C<sub>12</sub>-C<sub>22</sub> fatty  
13                 acid and a polyamine selected from the group consisting of diethylenetriamine,  
14                 triethylenetetramine; and pentaethylenetetramine.

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16     2.     The drilling fluid of claim 1 wherein the poly-carboxylic fatty acid is a mixture of  
17                 poly-carboxylic acids added in sufficient concentration so that the trimeric poly-  
18                 carboxylic fatty acid concentration in the drilling fluid is greater than 0.1 pounds per  
19                 barrel and is up to 5.0 pounds per barrel.

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21     3.     The drilling fluid of claim 1 wherein the oleaginous fluid comprises from about  
22                 30% to about 100% by volume of the drilling fluid and the oleaginous fluid of a material  
23                 selected from a group consisting of diesel oil, mineral oil, synthetic oil, esters, ethers,  
24                 acetals, di-alkylcarbonates, olefins, and combinations thereof.

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26     4.     The drilling fluid of claim 1 wherein the non-oleaginous fluid comprises from  
27                 about 1% to about 70% by volume of said drilling fluid and the non-oleaginous fluid is  
28                 selected from the group consisting of fresh water, sea water, a brine containing organic or  
29                 inorganic dissolved salts, a liquid containing water-miscible organic compounds, and  
30                 combinations thereof.

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2 5. The fluid of claim 1 further comprising a weighting agent or a bridging agent.

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4 6. The drilling fluid of claim 6, wherein the weighting agent or bridging agent is

5 selected from the group consisting of galena, hematite, magnetite, iron oxides, illmenite,

6 barite, siderite, celestite, dolomite, calcite and combinations thereof.

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8 7. The drilling fluid of claim 1, wherein the polyamide has a concentration greater

9 than 0.1 and up to 5.0 pounds per barrel.

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11 8. The drilling fluid of claim 1, wherein the polyamide is the condensation product

12 of one mole of diethylenetriamine and three moles of C<sub>12</sub>-C<sub>22</sub> fatty acid.

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14 9. A drilling fluid comprising:

15 an oleaginous fluid, wherein the oleaginous fluid is the continuous phase of the

16 drilling fluid;

17 a non-oleaginous fluid, wherein the non-oleaginous fluid is the discontinuous

18 phase of the drilling fluid;

19 a primary emulsifier, wherein the primary emulsifier is in sufficient concentration

20 to stabilize the invert emulsion;

21 an organophilic clay; and

22 a rheology modifier, wherein the rheology modifier is selected from the group

23 consisting of a poly-carboxylic C<sub>12</sub>-C<sub>22</sub>fatty acids and poly-amides formed from the

24 condensation reaction of poly-carboxylic C<sub>12</sub>-C<sub>22</sub>fatty acids and ethylenepolyamines.

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26 10. The drilling fluid of claim 9 wherein the poly-carboxylic fatty acid is a mixture of

27 poly-carboxylic acids added in sufficient concentration so that the trimeric poly-

28 carboxylic fatty acid concentration in the drilling fluid is greater than 0.1 pounds per

29 barrel and is up to 5.0 pounds per barrel.

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1       11. The drilling fluid of claim 9 wherein the oleaginous fluid comprises from about  
2       30% to about 100% by volume of the drilling fluid and the oleaginous fluid of a material  
3       selected from a group consisting of diesel oil, mineral oil, synthetic oil, esters, ethers,  
4       acetals, di-alkylcarbonates, olefins, and combinations thereof.

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6       12. The drilling fluid of claim 9 wherein the non-oleaginous fluid comprises from  
7       about 1% to about 70% by volume of said drilling fluid and the non-oleaginous fluid is  
8       selected from the group consisting of fresh water, sea water, a brine containing organic or  
9       inorganic dissolved salts, a liquid containing water-miscible organic compounds, and  
10      combinations thereof.

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12      13. The fluid of claim 9 further comprising a weighting agent or a bridging agent.

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14      14. The drilling fluid of claim 13, wherein the weighting agent or bridging agent is  
15      selected from the group consisting of galena, hematite, magnetite, iron oxides, illmenite,  
16      barite, siderite, celestite, dolomite, calcite and combinations thereof.

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18      15. The drilling fluid of claim 9, wherein the polyamide has a concentration greater  
19      than 0.1 and up to 5.0 pounds per barrel.

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21      16. The drilling fluid of claim 9, wherein the polyamide is the condensation product  
22      of one mole of diethylenetriamine and three moles of C<sub>12</sub>-C<sub>22</sub> fatty acid.

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24      17. In a method of rotary drilling a subterranean well using a drilling fluid, the  
25      improvement comprising the use of a drilling fluid including:

26            an oleaginous fluid, wherein the oleaginous fluid is the continuous phase of the  
27            drilling fluid;

28            a non-oleaginous fluid, wherein the non-oleaginous fluid is the discontinuous  
29            phase of the drilling fluid;

1           a primary emulsifier, wherein the primary emulsifier is in sufficient concentration  
2           to stabilize the invert emulsion;  
3           an organophilic clay; and  
4           a rheology modifier, wherein the rheology modifier is selected from the group  
5           consisting of a dimer poly-carboxylic C<sub>12</sub> to C<sub>22</sub> fatty acid, trimer poly-carboxylic  
6           C<sub>12</sub> to C<sub>22</sub> fatty acid, tetramer poly-carboxylic C<sub>12</sub> to C<sub>22</sub> fatty acid, mixtures of  
7           these acids, and polyamide wherein the polyamide is the condensation reaction  
8           product of a C<sub>12</sub>-C<sub>22</sub> fatty acid and a polyamine selected from the group consisting  
9           of diethylenetriamine, triethylenetetramine; and pentaethylenetetramine.

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11       18.    The drilling fluid of claim 17 wherein the poly-carboxylic fatty acid is a mixture  
12       of poly-carboxylic acids added in sufficient concentration so that the trimeric poly-  
13       carboxylic fatty acid concentration in the drilling fluid is greater than 0.1 pounds per  
14       barrel and is up to 5.0 pounds per barrel.

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16       19.    The drilling fluid of claim 17 wherein the oleaginous fluid comprises from about  
17       30% to about 100% by volume of the drilling fluid and the oleaginous fluid of a material  
18       selected from a group consisting of diesel oil, mineral oil, synthetic oil, esters, ethers,  
19       acetals, di-alkylcarbonates, olefins, and combinations thereof.

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21       20.    The drilling fluid of claim 17 wherein the non-oleaginous fluid comprises from  
22       about 1% to about 70% by volume of said drilling fluid and the non-oleaginous fluid is  
23       selected from the group consisting of fresh water, sea water, a brine containing organic or  
24       inorganic dissolved salts, a liquid containing water-miscible organic compounds, and  
25       combinations thereof.

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